Amendments to the claims (this listing replaces all prior versions):

1. (currently amended) A method comprising

conveying light from a moving light source on a writing instrument as an indication of a location and path of the writing instrument on a two-dimensional writing surface,

sensing the light at ~~pixels of~~ each of two or more sensors each comprising a linear array of sensitive pixels and generating a sequence of signals representative of the sensed light,

calculating from the signals positions of the light ~~at~~ only along the linear array of each of the two or more sensors, each of the positions at a resolution that is higher than ~~the~~ a pixel resolution of the ~~pixels~~ sensor along the linear array of the sensor, and

applying a technique to increase a stability of the positions.

2. (Original) The method of claim 1 in which the technique is based on optics.

3. (Previously Presented) The method of claim 1 in which optics are configured to enhance the uniformity of signal response of the sensors.

4. (Previously Presented) The method of claim 3 in which the optics comprise a spherical lens.

5. (Previously Presented) The method of claim 3 in which the optics comprise an aspheric lens.

6. (cancelled)

7. (Original) The method of claim 3 in which the sensors comprise analog sensors.

8. (Original) The method of claim 1 in which the technique is based on algorithmic processing of the generated signals.

9. (Original) The method of claim 8 in which the algorithmic processing comprises mapping the signal response of the sensors based on parameters associated with the writing instrument.

10. (Original) The method of claim 8 in which the technique is also based on optics.

11. (cancelled)

12. (Original) The method of claim 1 in which the technique is implemented in digital hardware.

13. (Original) The method of claim 1 in which the technique is implemented in analog circuitry.

14. (Previously Presented) The method of claim 1 in which the technique comprises an algorithmic technique that also reduces an effect of variations of intensity of the light based on other than dimensional effects.

15. (Previously Presented) The method of claim 1 in which

the sensors comprise pixel arrays,

the signals are grouped in frames, and

the technique comprises processing of multiple frames to cancel noise.

16. (Previously Presented) The method of claim 1 in which the light conveyed from the moving light source is modulated at a frequency related to the rate at which the signals are generated by the sensors.

17. (Previously Presented) The method of claim 1 in which

the light conveyed from the light source is modulated at a frequency, and

the sensor signals are chopped at the frequency of modulation.

18. (Original) The method of claim 17 in which opposite gains are applied to each of the chopped signals depending on the on or off state of the light conveyed from the writing instrument that corresponds to the signals.

19. (Previously Presented) The method of claim 17 in which the frequency is varied.

20. (Original) The method of claim 18 in which the chopped signals are integrated over time.

21. (Previously Presented) The method of claim 1 in which

the light conveyed from the light source includes a strong short pulse imposed on a modulation frequency, and

a phase lock loop determines the modulation frequency from the sensor signals, and

the sensor signal is sampled at the times triggered by the phase lock loop during the duration of the strong short pulse.

22. (Previously Presented) The method of claim 1 in which characteristics of the conveyed light are used for synchronization between the light source and the sensors.

23. (Original) The method of claim 1 in which the conveyed light includes periods of lower frequency modulation and bursts of higher frequency modulation, and the sensor signal associated with the higher frequency bursts is used to lock onto a modulation clock.

24. (currently amended) A method comprising

~~conveying light~~ from <u>within</u> a moving writing instrument,

<u>emitting light</u> in a time-changing pattern of directions,

sensing the light at two or more sensors located at two or more different locations spaced from the writing instrument, and

determining the location of the writing instrument by detecting a phase difference between signals measured at the two or more sensors.

25. (Original) The method of claim 24 in which the time-changing pattern of directions includes a rotating pattern with respect to an X-Y plane on which the writing instrument is moving.

26. (Original) The method of claim 25 in which the signal radiated in the positive X direction is in phase quadrature to the signal radiated in the Y direction.

27. (currently amended) Apparatus comprising

a sensor <u>comprising a linear array of sensitive pixels</u> configured to receive light from a writing instrument moving across an X-Y writing surface ~~and organized in pixels~~, and

optics that enable calculation of a position of the light <u>only along the linear array of the sensor</u> at a resolution that is higher than ~~the~~ <u>a pixel</u> resolution of the ~~pixels~~ <u>sensor along the linear array,</u>

in which the optics have an instability and are configured to enhance optical power of the light received from the writing instrument.

28. (Original) The apparatus of claim 27 in which the optics comprise a ball lens or an aspherical lens.

29. (Original) The apparatus of claim 27 in which the optics include a single spherical lens and the lens and the corresponding sensor are together configured to enhance the optical power

of light received at large angles or longer distances or at disadvantageous positions of the writing instrument.

30. (Original) The apparatus of claim 27 in which the optics include a special lens configured to enhance optical power of the light received from a location on the X-Y surface that is beyond a predetermined position.

31. (Previously Presented) The apparatus of claim 27 in which the optics include two cylindrical lenses, one nearer the sensor to project light horizontally onto the sensor, and the other positioned to collect light in the Z-axis dimension, the other lens having a body that is bent around the first lens.

32. (Original) The apparatus of claim 27 also including algorithmic processes that enhance the immunity of the signals to variations in the intensity of the received light caused by distance from or tilt of the writing instrument.

33. (Previously Presented) The apparatus of claim 32 in which the processes determine the integral power of the overall signal distribution on the sensor and calculate a position of the light at a resolution that is higher than the resolution of the pixels based on half of the integral power position.

34. (Previously Presented) The apparatus of claim 32 in which the processes use a polynomial approximation on the signal distribution and calculate a position of the light at a resolution that is higher than the resolution of the pixels as a position of approximated maximum.

35. (Original) The apparatus of claim 34 also including a calibration procedure to produce parameters to be used in combination with data from the sensors.

36. (Previously Presented) The apparatus of claim 35 in which the calibration parameters correct for non linearity of the sensors, and the algorithmic processes use a quasi triangulation technique to determine a position of the writing instrument.

37. (Previously Presented) The apparatus of Claim 36 in which the calibration parameters correct for non linearity of the sensors and the algorithmic processes determine the position of the writing instrument using polynomial series, and coefficients in these polynomials are determined during the calibration procedure.

38-82. (Cancelled)

83. (Previously Presented) A method comprising

locating a writing instrument at a succession of locations on a writing surface,

generating signals at sensors from light received from the writing instrument at the succession of locations, and

determining calibration parameters for the writing instrument for use in calibrating a process that determines the locations of the writing instrument as it is being moved on the writing surface.

84. (Previously Presented) The method of claim 83 in which the calibration parameters comprise coefficients used in polynomial series that are part of the location determining process.

85. (Previously Presented) The method of claim 83 in which the locations do not lie on a regular rectangular grid.

86 – 100. (Cancelled)

101. (currently amended) A method comprising

receiving light from a moving writing instrument at a light sensor ~~having an~~ comprising a linear array of sensitive pixel elements,

determining a location ~~in~~ only along the linear array at which the maximum intensity of light has been received from the writing instrument, the location being determined with a resolution that is higher than ~~the~~ a pixel resolution of the ~~pixel elements~~ sensor along the linear array.

102. (Previously Presented) The method of claim 101 in which the location is determined by determining an integer pixel location that is closest to the location, and

finding a fractional center of gravity of a subarray that is centered on the integer pixel location.

103 – 112. (Cancelled)